



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,999	02/05/2004	Michael Long	200314456	5380

22879 7590 05/19/2005

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

TSIDULKO, MARK

ART UNIT	PAPER NUMBER
----------	--------------

2875

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,999

Applicant(s)

LONG ET AL.

Examiner

Mark Tsidulko

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 14, 17-26, 31, 33-36, 39, 40 and 42-51 is/are rejected.
- 7) ☒ Claim(s) 10-13, 15, 16, 27-30, 32, 37, 38 and 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 032805.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the *condenser lens system* (claim 9) and *reflector* (claim 12) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: ***condenser lens system*** cited in claim 9 and ***reflector*** cited in claim 12 are not disclosed in the specification.

Appropriate correction is required.

Claim Objections

Claim 43 objected to because of the following informalities: claim ended with two dots. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 6-9, 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Moss et al. (US 6,341,876).

Referring to Claims 1, 2, 8 Moss et al. disclose (Fig.7) an illumination system having two light sources [701] and [703], two TIR prisms [709] and [711] and a light integrator rod [705] disposed to collect and homogenize light exiting from the prisms (col.7, lines 34-44).

Referring to Claims 4, 6, 43 Moss et al. disclose integrator having a light tunnel with reflective surfaces (Col.4, lines 20, 21).

Art Unit: 2875

Referring to Claims 7, 44 Moss et al. disclose a light pipe (col.1, line 44).

Referring to Claims 9, as best understood, and 45 Moss et al. disclose (Figs. 5, 7) an integrating device having a condenser lens [23], [703].

Referring to Claim 42 Moss et al. disclose (Fig.7) an illumination system having two light sources [701] and [703], two TIR prisms [709] and [711] and a light integrator rod [705], as means for collecting and homogenizing light exiting from the prisms (col.7, lines 34-44).

Claims 21, 22, 31, 49, 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (US 5,796,526).

Referring to Claims 21, 22 and 49, 50 Anderson discloses (Fig.1) an illumination optics having a plurality of TIR prisms [17] disposed along an optical axis [OA(1)] and a reflector (col.1, line 41) [16] disposed along the optical axis for reflecting a light from the prism back through the prism and down the optical axis [OA(1)].

Referring to Claim 31 Anderson discloses (Fig.3) an illumination optics having a first plurality of TIR prisms [33] (first group of three prisms) disposed along an optical axis and a second plurality of TIR prisms [33] (second group of three prisms) disposed adjacent and optically coupled with first plurality of prisms.

Claims 39, 46, 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Bartlett (US 6,252,636).

Art Unit: 2875

Referring to Claim 39 Bartlett discloses a light projection system including a projection lamp [50], a colored light source [40] and a TIR prism [60] receiving light from both light sources wherein this light is blended by the TIR prism.

Referring to Claims 46, 47 Bartlett discloses a first light source (red) [50] and a second light source (projection lamp) wherein the second light has a color lacking from the first light

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. (US 6,341,876) in view of Brake (US 4,322,128).

Moss et al. disclose (Fig. 7) that hypotenuse reflective surfaces of the prisms [709] and [711] are not located on an optical axis of the system.

Moss et al. discloses the instant claimed invention except for that the surfaces of TIR prisms that are not on an optical axes of the system have an aluminized coating.

Brake discloses (col.4, lines 67, 68; col.5, lines 1-3) a prism wherein hypotenuse reflective surface has an aluminized coating which is a high-reflective, as well known in the art.

Art Unit: 2875

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the aluminized coating, as taught by Brake for the prism of the device of Moss et al., in order to improve the reflectivity.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. (US 6,341,876) in view of Potekev et al. (US 6,419,365).

Moss et al. discloses the instant claimed invention except for rectangular tunnel.

Potekev et al. disclose a rectangular integrating tunnel [44] used for obtaining uniform illumination brightness (col. 5, lines 2-8).

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the light integrator of Moss et al. having a rectangular integrating tunnel, as taught by Potekev et al., in order to improve illumination.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. (US 6,341,876) in view of Anderson (US 5,796,526)

Moss et al. discloses the instant claimed invention except for a plurality of TIR prisms disposed along an optical axis and a plurality of light sources.

Anderson discloses (Fig.3) a plurality of TIR prisms disposed along an optical axis and a plurality of light sources. This structure allows to increase an illumination of the device.

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the a plurality of TIR prisms disposed along an optical

Art Unit: 2875

axis and a plurality of light sources, as taught by Anderson, for the device of Moss et al. in order to increase an illumination of the device.

Claims 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. (US 6,341,876). This reference discloses (Fig.7) a structure of the device but does not disclose a method of integrating light. It would have been obvious to one having ordinary skill in the art, at the time the invention was made to take the steps of apparatus above and provide a method of integrating light since a prior art of record teaches or suggests a means of integrating light:

- emitting light from two light sources [701] and [703] into TIR prisms [709] and [711] and homogenizing light with a light integrator [705] that collects the light exiting from the TIR prisms;
- homogenizing light has a reflecting light on inner walls of the light integrator.

Claims 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett (US 6,252,636). This reference discloses (Fig.7) a structure of the device but does not disclose a method of correcting a color. It would have been obvious to one having ordinary skill in the art, at the time the invention was made to take the steps of apparatus above and provide a method of correcting a color since a prior art of record teaches or suggests a means of correcting a color:

- emitting light from a first light source [50] and a second light source [40] to a TIR prism [60], integrating light from first and

Art Unit: 2875

second light sources with TIR prism wherein light from a second light source has a color lacking from the light from the first light source;

- wherein one light source is a projection lamp (col.4, line62) and a second light source [40] is a red light source.

Claims 23-26, 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US 5,796,526) in view of Moss et al. (US 6,341,876).

Referring to Claims 23, 33, 51 Anderson discloses the instant claimed invention except for light integrator.

Moss et al. disclose (Fig.7) a light integrator [705] for collecting (Abstract) light from the TIR prisms [709] and [711].

Referring to Claims 24, 34 Anderson discloses the instant claimed invention except for light integrating tunnel.

Moss et al. disclose integrator having a light tunnel with reflective surfaces (Col.4, lines 20, 21).

Referring to Claims 25, 35 Anderson discloses the instant claimed invention except for light pipe.

Moss et al. disclose a light pipe (col.1, line 44).

Referring to Claims 26, 36 Anderson discloses the instant claimed invention except for condenser lens.

Moss et al. disclose (Figs. 5, 7) an integrating device having a condenser lens [23], [703].

Art Unit: 2875

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the integrator, as taught by Moss et al. for the device of Anderson, in order to collect the light from the TIR prisms.

Claims 40, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett (US 6,252,636) in view of Moss et al. (US 6,341,876).

Bartlett discloses the instant claimed invention except for light integrator.

Moss et al. disclose (Fig.7) a light integrator [705] optically coupled with the TIR prisms in order to obtain uniform light distribution (col.2, lines 3-7).

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the light integrator, as taught by Moss et al. for device of Bartlett, in order to obtain uniform light distribution.

Allowable Subject Matter

Claims 10-13, 15, 16, 27-30, 32, 37, 38, 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Referring to Claims 10, 27, 37 the prior art of record fails to show a plurality of optical elements optically coupled and have an optical axis, a TIR prism formed at an interface between two of the optical elements and a light integrator disposed behind the TIR prism.

Referring to Claims 11, 12, as best understood, 28, 38 the prior art of record fails to show a plurality of TIR prisms disposed along an optical axis, wherein each

Art Unit: 2875

subsequent prism has a steeper angle than a previous TIR prism along the axis and a light integrator disposed behind the plurality of TIR prisms.

Claim 13 is objected as claim depended on claim 12.

Referring to Claim 15 the prior art of record fails to show a plurality of TIR prisms disposed along an optical axis, a second plurality of TIR prisms, each of which is disposed adjacent to and optically coupled to one of the first plurality of TIR prisms.

Claim 16 is objected as claim depended on claim 15.

Referring to Claim 29 the prior art of record fails to show a first set of light sources disposed along one side of the plurality of TIR prisms and a second set of light sources disposed along an opposite side of the plurality of TIR prisms.

Claim 30 is objected as claim depended on claim 29.

Referring to Claim 32 the prior art of record fails to show system having first plurality and a second plurality of the TIR prisms and two light sources disposed with each of the second plurality of TIR prisms, wherein each of the second plurality of prisms receives and integrates light from two light sources.

Referring to Claim 41 the prior art of record fails to show a projection system wherein a colored light source has a frequency range over which the projection lamp has a lower intensity than other parts of a visible frequency spectrum.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Tsidulko whose telephone number is (571)272-2384. The examiner can normally be reached on 8 - 5.

Art Unit: 2875

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M.T.
March 28, 2005



JOHN ANTHONY WARD
PRIMARY EXAMINER